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AUTHOR Anderson, Stephen A.; And Others
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ABSTRACT

Yale Public Schools (Yale, Michigan) conducted a field experiment in implementing mastery learning. The purpose of the experiment was to provide a hands-on experience for teachers in the implementation of mastery learning and to use students as their own controls in order to compare the results of the implementation of mastery learning both in terms of cognitive and affective student outcomes. Six classrooms were used in the sample for the experiment which included grades 3 through 6 plus a 5th/6th split grade and a special education resource room class, for a total of six teachers and 94 students. A series of six hour-long inservice classes were held to acquaint teachers with mastery learning. All six teachers chose mathematics as the content area for implementation. Test results compared the unit test scores in the fall of 1991 with the test results after implementation of two mastery learning units in the spring of 1992. Students were also assessed for any change in their feelings of self-efficacy using Brookover's Self-Concept of Ability Survey. Significant gains in achievement were found for both mastery learning units and self-efficacy. (Three tables and three figures of data are included; 20 references, verbatim reports of each of the six teachers on the implementation of the mastery learning units, the self-concept of ability scale, and the proposal for mastery learning experimentation are attached.) (Author/RS)

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A Mastery Learning Experiment

Stephen A. Anderson, Cleo Barrett, Marilyn Huston,

Lorretta Lay, Gail Myr, Daryl Sexton, and Bob Watson

Yale Public Schools
Yale, MI 48097

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ABSTRACT

Yale Public Schools conducted a field experiment in implementing mastery learning. The purpose of this experiment was twofold. First, it was an attempt to provide a hands-on experience for teachers in the implementation of mastery learning. A description of the professional development model is provided. Second, a field experiment was designed using students as their own controls in order to compare the results of the implementation of mastery learning both in terms of cognitive and affective student outcomes. There were six classrooms used in the sample for this experiment which included grades 3 through 6 and a special education resource room class. Demographic data is provided to describe the socioeconomic characteristics of this sample. Feedback and observations from teachers who participated are provided. Test results compared the unit test scores in the fall of 1991 with the test results after implementation of two mastery learning units in the spring of 1992. In addition, students were assessed for any change in their self-efficacy using Brookover's Self-Concept of Ability Survey. Significant gains in achievement were found for both mastery learning units and self-efficacy.

A Mastery Learning Experiment

Introduction

Since the late 1960's when Bloom (1968) outlined his mastery teaching strategy in his article," Learning for Mastery," several experiments have been carried out to test whether his technique has an effect on student achievement. Various authors have duplicated his experiment with similar results. Hymel(1982) cites one thousand articles and publications on mastery learning. Bloom (1984) and several of his students have refined and added to his methods to the point that mastery learning is approaching the same powerful effect as one-to-one tutoring. With this preponderance of evidence on the efficacy of mastery learning, Yale Public Schools decided to implement an experiment to test the potential of professional development and implementation of mastery learning.

Sample

Yale Public Schools is a large rural school district in terms of area (170 square miles) with a population of approximately 9,000. The school district enrollment is 1,880. The school district is in St. Clair County which is considered part of the metropolitan Detroit area. Table I shows demographic characteristics for the school district from the 1985 update of the 1980 Census. An examination of this data will show that the school district has some of the lowest socioeconomic and highest "at risk" indicators for the county.

"AT - RISK" DEMOGRAPHIC STATISTICS F('ALE PUBLIC SCHOOLS

TABLE I

YALE PUBLIC SCHOOL DISTRICT

Townships or Cities	Brockway	Emmett	Emmett Township	Greenwood	Kenockee	Lynn	Riley	Wales	Yale	Yale Average
A. Family History of Low School Achievement										
B. Low Parental/Sibling Educational Attainment on Illiteracy										
Years of school completed (% of persons 25 or over)										
Eight or less	16	11	17	22[2]	19	19	17	16	23	17.8
Nine to Eleven	17	25[2]	18	16	19	19	20	18	17	18.8
H.S. Grad or GED	48	46	50	46	44	47	48	48	39	46.0
1-3 yrs. College	15	14	11	12	12	11	12	12	11	12.2
College Graduate	05	05	05	03[1]	05	07	04	06	10	5.6

1. lowest in St. Clair County
2. highest in St. Clair County

C. Single Parent	
Total households	2,734
% with children under 18	50
Households with one or more persons under 18 by type:	
One parent household:	
Male Householder	37
Female Householder	141
% of households with one parent and person under 18	13

TABLE I (Continued)

YALE PUBLIC SCHOOL DISTRICT

wnships or Cities	Brockway	Emmett	Emmett Township	Greenwood	Kenockee	Lynn	Riley	Wales	Yale	Yale Average
Unemployed parent/ parents										
Unemployment rate	12	17	19	14	18	20*	12	16	16	16
				*third highest in St. Clair County						
Low family income										
Median HHLD Income	18,322	14,027	18,750	18,867	18,912	18,020	22,900	21,672	13,932*	18378.00
Median Family Income	20,607	19,375	19,862	20,750	19,805	18,250*	25,155	22,205	18,522	20503.44
				*lowest in St. Clair County						
Income type: % of HHLD										
with: Earnings	84	78	85	86	84	92	89	89	70[1]	84
Soc. Security	27	36	26	20	26	27	15	22	39[2]	26.4
Public Assistance	04	09	08	10	10	06	05	06	09	7.4
				1. lowest in St. Clair County						
				2. highest in St. Clair County						
Percent in Poverty										
Total	10	20[2]	11	07	09	05	06	07	08	9.2
Children 17 & Under	11	26[2]	13	09	08	05	05	06	08	10.1
Total households	10	18[2]	12	10	12	06	09	09	11	10.8
Female head w/ child	32	00[1]	59	31	38	62	20	21	24	31.9
Families Total	07	17	09	04	09	05	06	07	05	7.7
				1. lowest in St. Clair County						
				2. highest in St. Clair County						
Lack of a stable support system or residence.										
Residence in 1975 (%)										
Same House	54	81	57	63	62	55	65	64	55	61.8
Elsewhere in Michigan	43	19	42	37	36	41	33	34	43	36.4
Outside Michigan	03	00	01	01	02	04	02	01	02	1.8

lassifications A-F are factors taken from a Michigan Department of ducation document entitled, "Factors Which Place Children 'At Risk'". tatistics are from the 1980 and 1985 update of the U.S. Census.

Teachers volunteered to participate in this experiment. Volunteers included onethird grade teachers, one fourth grade teacher, one fifth grade teacher, one teacher of a fifth/sixth split, one sixth grade teacher, and one resource room teacher. The total number of students in these volunteer teachers' classrooms was 94.

Design

The design of this field experiment was a simple multiple group pre- and post-test design with the sample acting as their own controls. Volunteer teachers were asked to choose a subject that they wanted to use to implement mastery learning. All of the teachers chose mathematics as the content area for implementation. Teachers brought the test results of a traditional unit from the fall in the content area of their choice. The teachers would then participate in an inservice on mastery learning. While participating in the mastery learning class, the teachers were asked to develop two mastery learning units that they would then implement in the spring. Before implementation, teachers were asked to give their classes Brookover's Self-Concept of Ability Scales. After review and refinement of the mastery lessons, teachers implemented the two units. Test scores were obtained for each unit implemented. Unit tests were developed as part of the mastery learning inservice that were aligned with instructional objectives. At the end of implementation, teachers were once again asked to give their students Brookover's (1989) Self-Concept of

Ability Scales. A copy of this instrument is included in the Appendix.

The reason that Brookover's Self-Concept of Ability Scales was used was because of predictions that increased mastery in academic areas would increase academic self-concept (Guskey, 1985). This concept of academic self-concept is similar in conceptual definition to self-concept of ability and self-efficacy: personal beliefs of an individual about his or her capabilities to organize and implement actions necessary to attain designated levels of performance (Bandura, 1982).

Ary, Jacobs, and Razavieh (1985) lists several limitations to this design. Probably the most serious limitation to this experimental design is the maturation effect. While the length of time between traditional and mastery units may exacerbate this affect, it also controls for pretesting effects. Part of the inservice was the development of criterion referenced formative testing so that they were aligned to teaching objectives. While this may raise the question regarding control of the pretest measuring instrument (the traditional unit test), this in itself is part of the mastery learning technique. Another validity problem with this design is the selection of the sample. While the sample was not randomly selected, the fact that there were six classes included may help the reader determine whether the effects have external validity.

The hypothesis for this study was that the implementation of mastery learning techniques would result in higher levels of achievement and self-efficacy. The statistical assumption for significance was set at .01 (α=.01). Because of the limitations of design, it was assumed that this level of significance should be conservative because of the maturation effect. Since the sample would serve as their own controls, the statistical test of significance used was a two sample, one-tailed test of the mean for dependent samples (H_0: $\delta=\mu_1-\mu_2=0$, Hinkle, Wiersma, & Jurs, 1988).

Staff Development Design

Research on staff development (Sparks, 1983) indicates that the characteristics of effective development include the following:

1. Content that has been verified by research to improve student achievement.
2. Creates a context of acceptance by involving teachers in decision making and providing both logistical and psychological administrative support.
3. Training sessions (more than one) are two or three weeks apart.
4. Includes presentation, demonstration, practice, and feedback (or coaching) as workshop activities.
5. During training sessions, provide opportunities for small-group discussions of the applications of new practices and sharing of ideas and concerns about effective instruction.
6. Between workshops, encourage teachers to visit each others' classrooms, preferably with a simple, objective, student-centered observation instrument.

7. Develop in teachers a philosophical acceptance of the new practices by presenting research and a rationale for the effectiveness of the techniques.

8. Lower teachers' perception of the cost of adopting a new practice through detailed discussions of the "nuts and bolts" of using the technique and teacher sharing of experiences with the technique.

9. Help teachers grow in their self-confidence and competence through encouraging them to try only one or two new practices after each workshop.

10. For teaching practices that require very complex thinking skills, plan to take more time, provide more practice, and consider activities that develop conceptual flexibility.

With this staff development research in mind, a mastery learning inservice was developed. Teachers were asked for their input on convenient times to meet. Given this, six hour-long classes were scheduled that followed the outline of Guskey's (1985) book, *Implementing Mastery Learning*. Each teacher was given a copy of the book and several research studies on mastery learning (Guskey, 1990a; Guskey, 1990b; Cohen, 1983; Block, Efthim, and Burns, 1989; Guskey and Gates, 1986; Guskey, 1988; and Bloom, 1984). Table II indicates the topics covered for each class. Each teacher was expected to complete an example of each topic to bring and discuss at the next class. Teachers were asked to divide themselves into pairs to work together as a team. Therefore, there was both peer coaching and a trained facilitator to follow-up on each class. When classes were completed, a seventh session was held after implementation to debrief the participants.

Table II

Mastery Learning Workshop Topics

Class	Topic
1	Introduction- description of experiment, opportunities, and expectations. Theoretical and research implications of mastery learning. Mastery learning materials and research.
2	Developing mastery units.
3	Developing authentic formative tests.
4	Developing correctives and feedback.
5	Developing enrichment activities.
6	Implementation, feedback, monitoring, and revisions.

A copy of the original mastery learning proposal is included in the Appendix. Besides the theoretical justification for this proposal, a description and budget is included for the project.

Findings

Table III lists the frequency distributions for the pretest, or traditional unit, and post-tests 1 and 2, the mastery learning units. An examination of the data indicates what appears to be an upward shift of achievement for the mastery learning units. For post-test 2, some of the teachers were unable to fit in the second unit before the end of the school year which is the reason for the lower numbers as compared to the fall, or pretest, group. This shift in achievement scores is shown graphically in Figures 1-3.

Table III

Yale Public Schools
Mastery Learning Experiment
1991-92 School Year
Frequency Distribution

Pretest

Midpoints	37	42	47	52	57	62	67	72	77	82	87	92	97	100
Frequencies	1	0	2	2	4	6	8	12	19	12	15	2	8	1

Post-test 1

Midpoints	37	42	47	52	57	62	67	72	77	82	87	92	97	100
Frequencies	0	0	1	0	0	2	3	3	10	15	21	15	11	10

Post-test 2

Midpoints	37	42	47	52	57	62	67	72	77	82	87	92	97	100
Frequencies	0	0	1	0	0	2	3	0	0	18	7	6	7	6

FIGURE 1

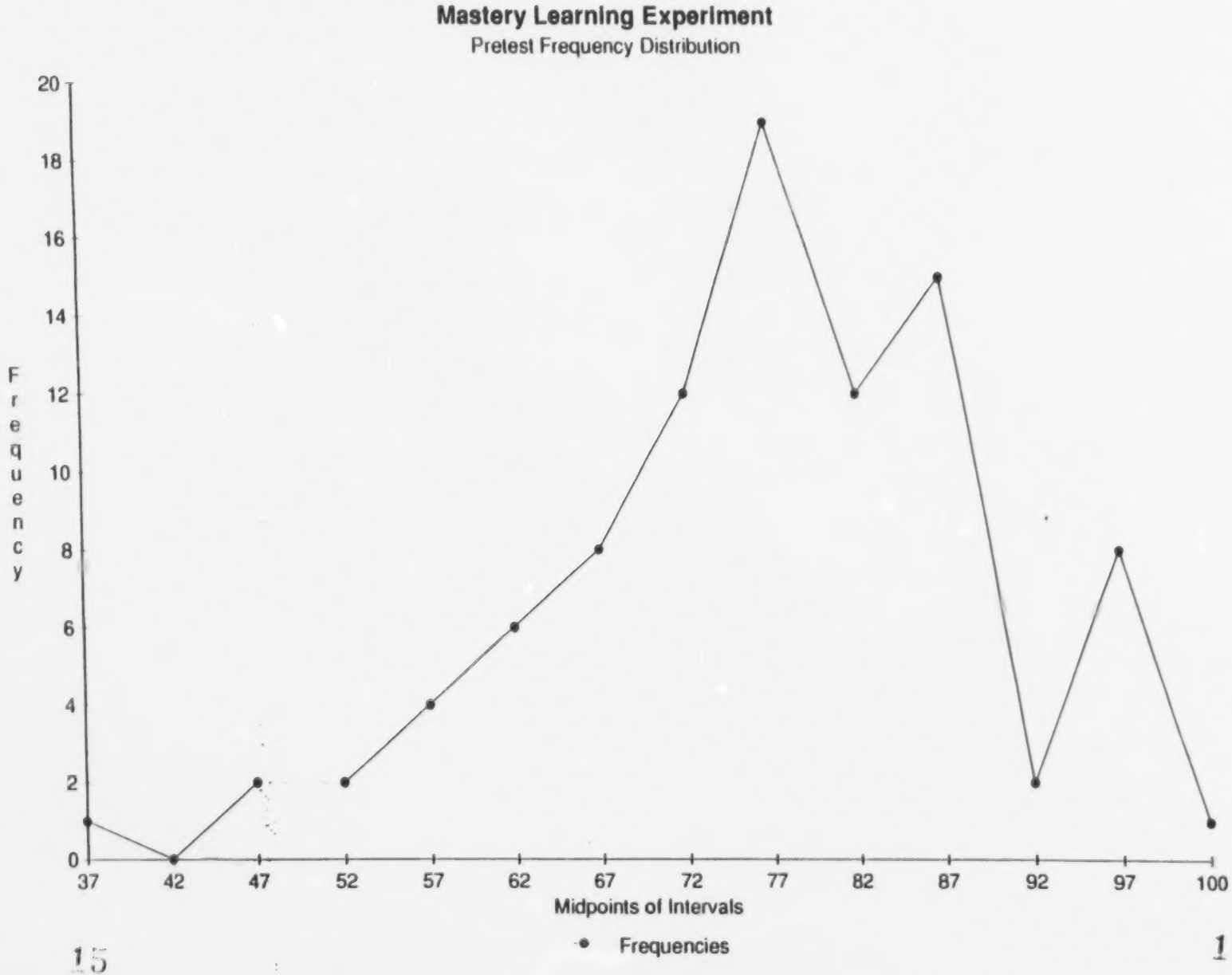
Mastery Learning Experiment
Pretest Frequency Distribution
Frequency
20
18
16
14
12
10
8
6
4
2
0
37
42
47
52
57
62
67
72
77
82
87
92
97
100
Midpoints of Intervals
Frequencies

Figure 2

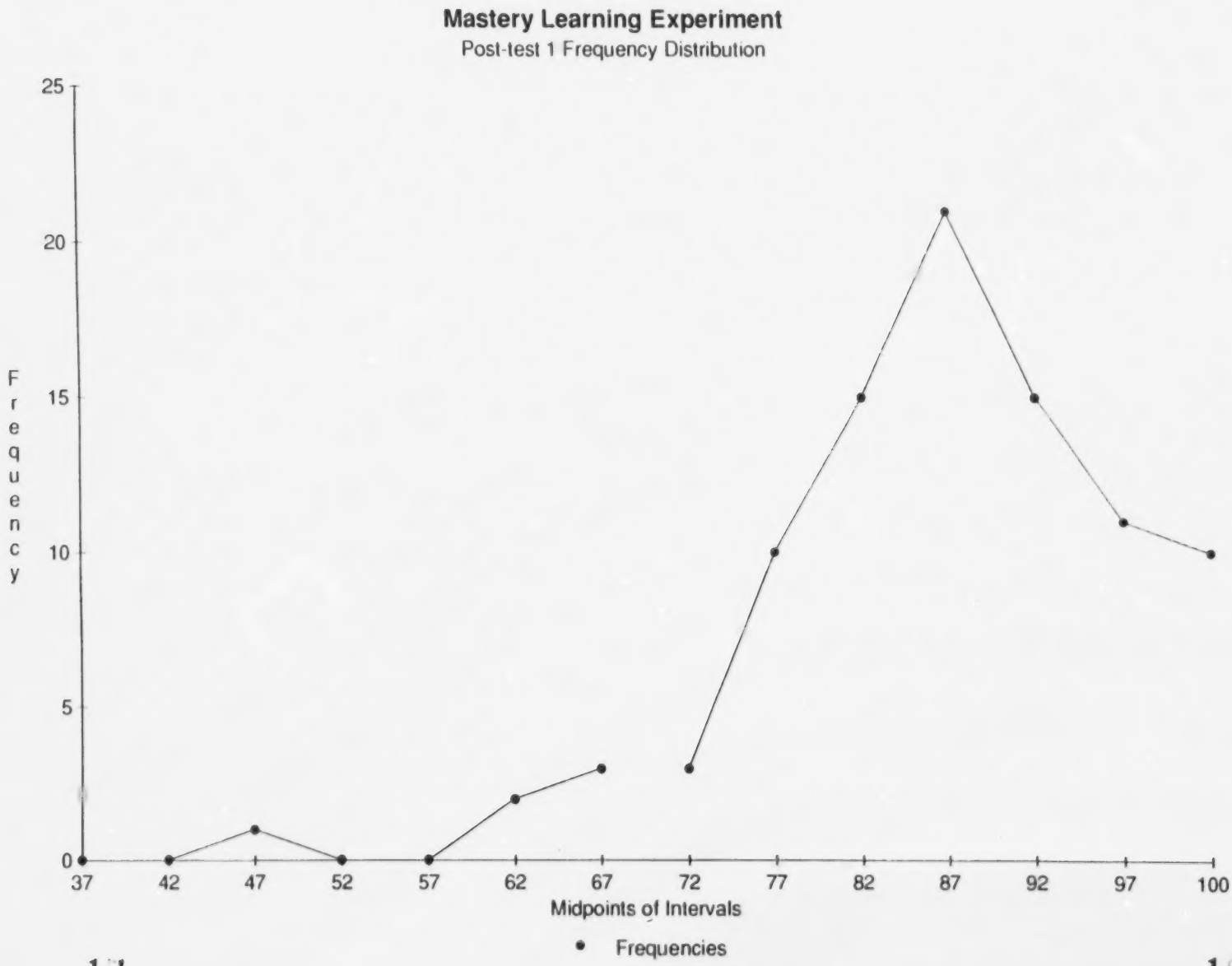
Mastery Learning Experiment
Post-test 1 Frequency Distribution
Frequency
25
20
15
10
5
0
37
42
47
52
57
62
67
72
77
82
87
92
97
100
Midpoints of Intervals
Frequencies

FIGURE 3

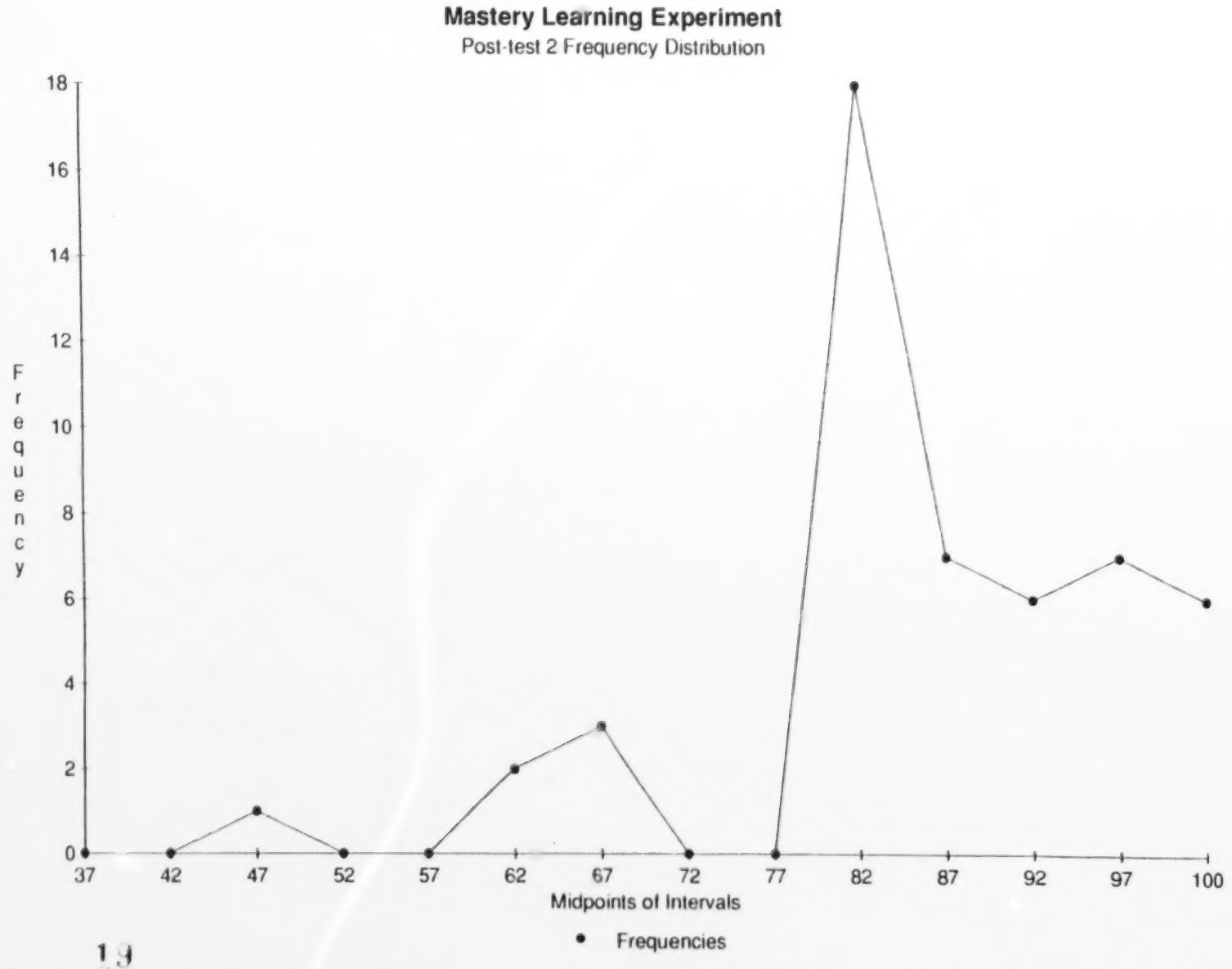
Mastery Learning Experiment
Post-test 2 Frequency Distribution
Frequency
18
16
14
12
10
8
6
4
2
0
37
42
47
52
57
62
67
72
77
82
87
92
97
100
Midpoints of Intervals
Frequencies

Table IV lists the sums, averages, numbers, standard deviations, differences, and effect sizes for the three groups in both achievement and self-concept of ability. The averages indicate that the implementation of mastery learning resulted in an increase in the mean achievement on unit tests by almost one grade level (pretest to post-test 1: 75% to 85% and pretest to post-test 2: 75% to 83%). The effect size change was .66 when comparing the pretest to post-test 1 and .56 when comparing the pretest to post-test 2. Both of these increases were significant at the .0005 level ($p<.0005$). For this reason the null hypothesis is rejected and the alternative hypothesis is accepted: mastery learning does have a positive effect on student achievement. It should be noted that the number contained in the sample and the number used in comparing differences were not the same. This is due to two students who moved during the course of the year.

The implementation of mastery learning had an effect on the students' self-concept of ability. Scores on Brookover's Self-Concept of Ability Scales increased from a mean of 3.5 to a mean of 3.8. This represented an effect size increase of .31. This increase was significant at the .01 level ($p<.01$). For this reason the null hypothesis is rejected and the alternative hypothesis is accepted: mastery learning does have a positive effect on students' self-concept of ability. Reductions in sample size for this comparison was due to two teachers who did not have their

classes complete the second scale. This data, therefore, was eliminated for comparison.

Discussion and Summary

The literature cited indicates that mastery learning can have a significant positive impact on achievement. In this experiment, the introduction of mastery learning increased the average performance for six classes, including a resource room, from an average level to an above average level. The statistical analysis of the data indicates that the effect was strong.

As predicted, the students' perception of their self-concept of ability improved. An interpretation of this data might be facilitated by looking at the scales. In essence, the improvement of mean self-concept score indicates that students' perception of their ability went from "average" to closer to "above average." This would seem self-evident since an increase in achievement would naturally correlate with a perception of one's ability. However, the importance of this should not be overlooked since increased feelings of one's ability, or self-efficacy, correlates better with present achievement (Byrne, 1982; Wylie, 1974; Brookover et al, 1962) and predictions of future achievement (Haarer, 1964; Keefer, 1966) than self-esteem.

The use of this type of model for inservice has proven effective in several ways. First, by following several of the characteristics of effective inservice, teachers actually implemented the desired concept. Second, the

changed teacher behavior had a positive impact on students. Third, the attitudes of teachers changed in a positive direction. Teachers were asked to write their own observations of the implementation of mastery learning. An examination of these reports contained in the Appendix will show that teachers felt that the process was hard, but were encouraged by the positive results. As one teacher wrote, she felt "empowered."

An interesting question left unanswered by this study is the long term effects. The students' achievement improved, their self-concepts of ability improved, the teachers' attitude toward their own abilities and their students improved. Would this improved attitude affect the classroom climate and level of expectations so that a domino effect would begin leading to further improvements and effectiveness?

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APPENDIX

Teacher Reports

Teachers who participated in this experiment were asked to write a short report on their observations of the implementation of mastery learning. What follows are verbatim copies of the reports submitted.

After taking the unit test those students who scored 80% or higher were given group activities to do. These activities consisted of thinking skill worksheets and activities from the fraction bar kit. The students worked in two small group settings and worked independently from the rest of the class.

Students who did not master the unit worked directly with me using the fraction bar kit and worksheets to reinforce those objectives that were not reached.

The group did well in both units, though the success rate was not at 80%. On the multiplication unit 68% of the class scored 80% or better. There were however 3 students who were within extremely close, one scoring 79% and the other two at 75%. The division unit ended up with a higher percent success rate 78% though still not reaching the 80% goal.

These findings indicate that mastery learning is a very successful method of teaching. However, I feel that more time is needed for the unit and the time of year was not conducive to successful learning.

After Test A I used a number of different methods to reteach the concepts. Peer tutoring was a basic element along with extra board work, the times table number chart for practice, rap multiplication singing and finger counting.

In Resource Room there were only 5 students participating in the mastery learning units. On the multiplication Test A 3 of the 5 students passed. The 3 students that passed took turns peer tutoring the 2 students who did not pass. During math time while 1 student was being a peer tutor, the other 2 students got to choose enrichment activities from these choices: hundred board activities, multiplication bingo, recorded times tables from the library, and board games to play with multiplication flashcards. The two who did not pass spent either time being peer tutored or working individually on multiplication activities from the book *Motivational Learning Games*, doing

selected worksheets from Mrs. L's files or my files, or board work designed for the items missed. Upon taking multiplication Test B 1 student passed with 92%, the other didn't (but most errors consisted of one-number-off careless errors).

The division Test A was passed by 4 out the 5 students. The same student who did not pass either of the multiplication tests did not achieve mastery. He got 76%. The complete enrichment/relearning process was repeated using division. On the division Test B he obtained 92%. Probably because more emphasis was put on the process this time.

I participated in mastery learning in the content area of math using 19 fourth and fifth grade students. My teaching support partner was Mrs. H., fourth grade. The two areas of math covered were fractions and geometry.

Mrs. H. and I first decided which objectives in the math book could reasonably be mastered by our students. We then researched and listed activities in these areas that could be used for reinforcement and enrichment, respectively. In addition to teaching the basic skills suggested by our adopted curriculum, we wanted to incorporate the use of a variety of manipulatives and learning styles to help master the concepts. After our objectives and methods of meeting those objectives were listed, we created two similar tests for fractions and geometry.

In March, I gave my class the "Self-Concept of Ability Scale." Although I read each question to the class and explained it thoroughly, I am not convinced that this particular instrument would have high validity for this age level. Many, if not all, could not truly conceive of high school ranking let alone a post-graduate career (items #3 and #6). As soon as this scale was administered, I began the mastery units.

I immersed the class in several activities to develop the concept of fractions. (Most had never had fractions yet in their elementary careers.) We then began to meet the objectives decided upon, using the activities and materials before mentioned. When all activities and objectives had been completed, Form A of the test was administered. Eight students did not score at 80%. However, of these eight, none were below 65%. I then retaught the objectives that were missed, and gave the other students enrichment activities. Several students complained that their enrichment work was too hard and they wished they had not done so well on the first test. What seemed to work the best, was pairing the students who had mastered the concepts

with those who had not. Four days later, Form B was administered, and all but one achieved the 80% level. That one student received 78%, so I was not vastly disappointed.

The geometry unit was taught in the same manner, but the Form A test found all student scoring at 80% or above!

When all the tests and units were completed, I readministered the self-concept scale.

I felt empowered using the mastery method because it gave me permission to take the time to reteach the students who missed out the first time around. I think the students were a bit incredulous of this concept, but delighted at the second chance to retake a test and improve their grade, their concepts, and self-image all at once.

I will probably continue to incorporate the mastery technique within my teaching environment. However, I may not expect my students to fully master everything at once, if it is really on the introductory level. This is what we did with the fractions, and I think it was overwhelming for them. I do believe that it works well when what you are teaching is not all new. It certainly worked better with the geometry unit where the students seemed to have more prior knowledge of the subject from the start.

We completed the fraction chapter and took Form A test, then as we began the geometry chapter, worked on reteaching the fraction skills and found we ran out of time to finish the Form B test on fractions. The students were having so much fun doing the geometry unit that we continued to finish the complete chapter and took Form A test.

I found it took more time than I had anticipated. It must be remembered that there were many other activities we were involved in at the end of the year and throughout the month of May.

Mastery learning did make me more aware of working harder with the students who needed more than one technique to acquire a certain skill.

After being introduced to the concepts, objectives, and teaching techniques for the Mastery Learning process, I designed and implemented a geometry unit utilizing such components for my sixth grade classroom. The following information will summarize this experience.

My initial task was to compile a set of learning objectives encompassing the skills and abilities germane to my chosen topic of study. These learning objectives would then serve as a basis for developing both the table of specifications and the formative tests and for planning feedback and corrective activities. In presenting this unit to my students I used the Mastery Learning strategy of testing each objective as it was introduced and taught. By utilizing "objective' quizzes" on a daily or so basis. I was able to present enrichment activities such as "Mira Math," "Pentamino Patterns," tangram exercises, blueprinting, etc. to those students demonstrating proficiency. At the same time, I was able to reteach objectives using my correctives to those students demonstrating the need for remediation. In this manner, the majority of my youngsters were demonstrating mastery of all learning objectives at the end of the unit of study. This was substantiated by the fact that all of the students passed the post-test with a score of 80% or better. The class mean for the post-test was 90%.

I thoroughly enjoyed the Mastery Learning strategy as presented above. I found that my students were far less frustrated with this approach to learning than with a more traditional method. Good students did not feel "held back" and were not bored. Slower students did not feel pressured and were able to feel a sense of accomplishment when concepts were eventually mastered. I found that I was more relaxed, mirroring the attitudes of my students. I was able to utilize such positive strategies as cooperative learning groups, peer coaching, and independent learning programs within the framework of the mastery learning process. In summary, it was a very valuable program for me, and it is one that I look forward to using again in all areas of the curriculum.

SELF-CONCEPT OF ABILITY SCALE

Form A: General

INSTRUCTIONS: Circle the letter in front of the statement which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?

   A. I am the best
   B. I am above average
   C. I am average
   D. I am below average
   E. I am the poorest

2. How do you rate yourself in school ability compared with those in your class at school?

   A. I am among the best
   B. I am above average
   C. I am average
   D. I am below average
   E. I am among the poorest

3. Where do you think you would rank in your class in high school?

   A. Among the best
   B. Above average
   C. Average
   D. Below average
   E. Among the poorest

4. Do you think you have the ability to complete college?

   A. Yes, definitely
   B. Yes, probably
   C. Not sure either way
   D. Probably not
   E. No

5. Where do you think you would rank in your class in college?

   A. Among the best
   B. Above average
   C. Average
   D. Below average
   E. Among the poorest

6. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think it is that you would complete such advanced work?

   A. Very likely
   B. Somewhat likely
   C. Not sure either way
   D. Unlikely
   E. Most unlikely

7. Forget for a moment how others grade your work. In your own opinion, how good do you think your work is?

   A. My work is excellent
   B. My work is good
   C. My work is average
   D. My work is below average
   E. My work is much below average

8. What kinds of grades do you think you are capable of getting?

   A. Mostly A's
   B. Mostly B's
   C. Mostly C's
   D. Mostly D's
   E. Mostly E's

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Proposal for Master Learning Experimentation

Description

Teachers would choose a subject area that they are interested in applying mastery learning. Teachers would be given workshops on mastery learning; the development of mastery units, formative tests, summative tests, and enrichment. The teacher would then implement the unit developed later in the year. Teachers would be paid stipends for the workshops and given the opportunity to attend a regional conference and to participate in peer coaching. Teachers would be held responsible to complete two mastery units, implement those units, and report test data.

Potential Benefits

Potential benefits of this experiment are threefold. First, Bloom (1984) has reported that in studies where mastery learning is used, student achievement has increased anywheres from 1 to 1.7 standard deviations. That is similar to increasing an average class from an average percentile score of 50% to 84-96% Second, this will provide teachers who participate with professional development in an effective teaching model. Third, this may serve as a model for other buildings in our district and may be helpful in school improvement for student outcomes. It would also provide the district with a group of experienced teachers who could serve as consultants.

Experimental Design

Once a teacher has chosen a subject area, that teacher will report the percentages of correct answers on an assessment given using the traditional approach. This will establish baseline data for comparison. Test scores will remain confidential for all students and only aggregate data will be reported. After the inservice, teachers will implement two mastery units in the same subject areas and report percentages of correct answers for formative assessments in those units. Test scores will be compared for significance using a Student T for means. To assess what, if any, effects this technique has on the feelings of self-efficacy of students, a pre- and post- assessment will be made using Brookover's Self-Efficacy Survey.

Workshop Topics

Below are suggested topics for professional development:

1. Introduction- description of experiment, opportunities, and expectations. Theoretical and research implications of mastery learning.

2. Developing mastery units

3. Developing authentic formative tests.

4. Developing correctives and feedback.

5. Developing enrichment activities.

6. Implementation, feedback, monitoring, and revisions.

Workshop Design

Each of the above topics would be presented in a two-hour workshop after school bi-weekly. Teachers would be paid a stipend of $25 for each workshop attended. Each teacher would receive a copy of the book Implementing Mastery Learning by Thomas R. Gusky. Two teachers and principal will attend Dr. Gusky's workshop to be held in Flint this fall. Two substitute days would be provided to the building to allow teachers to visit one another during implementation of the first and second mastery units. The feedback session would be scheduled between implementation of the first and second units. Pre- and post- test data would be collected for one traditional unit and two mastery units.

Workshop Schedule

To be determined convenient to participating building.

Budget

What follows is a proposed budget for this experiment. Money for this project will be obtained from money obtained from CMU as a kickback for tuition paid through our Section 98 grant.

Function		Amount
Stipends.	7 teachers X $25 X 6	$1050
Textbooks	7 x $20	$140
Videotape		$304
Substitutes	Workshop 2 x $50	$100
	Peer Coaching 2 x $50	$100
Workshop	Registration 3 x $100	$300
	Mileage .27 x 120 miles	$33
Miscellaneous		
	Refreshments 6 x $30	$180
	Supplies	$200
Total		$2407

Evaluation

At the end of this project, an evaluation report will be written showing the results of this project. This report will be developed into an article that will be submitted to ERIC for publication.

Resources

Bloom, B. (1984). The search for methods of group instruction as effective as one-to-one tutoring. Educational Leadership, 41, 8, 4-17.

Guskey, T. (1985). Implementing Mastery Learning. Belmont, CA: Wadsworth Publishing Co.